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EXAMINER

BHATTACHARYA, SAM

ART UNIT

PAPER NUMBER

2687

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/067,234	Applicant(s) KOKUBO, MASARU	
	Examiner Sam Bhattacharya	Art Unit 2687	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,6,9,13 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 3-5,7,8,10-12 and 14-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 2, 6, 9, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the application prior art (Admission) in view of Wentzler (US 5,151,665), and further in view of Tarusawa et al. (US 4,980,652).

As to claims 2 and 17, Admission discloses an FM transmitter (page 1, lines 13-22), comprising: a phase lock loop (page 1, lines 13-15); an adder to add up a frequency shift to a signal of said phase lock loop, said frequency shift corresponding to a transmission signal (page 2, lines 19-22 and page 3, lines 3-7); and a controller to receive a signal regarding start and idle of said phase lock loop (page 2, lines 11-19).

However, Admission does not disclose a charging pump in a phase lock loop and a controller to output a control signal to control an output of said charging pump. The Wentzler reference teaches a charging pump in a phase lock loop (see Col. 4, lines 57-65 and Figure 2) and the controller to output a control signal to control an output of said charging pump (see Col. 7, lines 1-6, 13-20, and Figure 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmitter of Admission to further comprise a charging pump in a phase lock loop and a controller to output a control signal to control an output of said charging pump, as taught by Wentzler, in order to have a phase lock loop system which can be switched between a slow and fast transition state.

The combination of Admission and Wentzler fails to disclose a charging pump that is controlled specifically to switch status of the phase locked loop between open and closed. In an analogous art, Tarusawa et al. disclose a charging pump that is combined with a switch and logic circuit and controlled specifically to switch status of the phase locked loop between open and closed to conserve battery power. See FIG. 14b, and col. 10, lines 27-48. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmitter of Admission and Wentzler by controlling the phase locked loop to switch status between open and closed, as taught by Tarusawa et al. for the purpose of conserving the battery power of the transmitter when communications are not being carried on.

As to claims 6 and 18, Admission-Wentzler-Juntunen discloses the FM transmitter according to claim 3, wherein said charging pump is provided with a logical circuit to suppress a frequency control signal output from said phase comparator according to a control signal output from said controller (Wentzler: see Col. 5, lines 12-31, Col. 7, lines 1-6, 13-20, and Figure 2). Wentzler further discloses that the phase lock loop includes a charging pump (Wentzler: see Col. 4, lines 57-65 and Figure 2), and wherein said FM transmitter includes a controller to receive a signal regarding start and idle of said phase lock loop, and to output a control signal to control an output of said charging pump (Wentzler: see Col. 7, lines 1-6, 13-20, and Figure 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmitter of Admission and Wentzler by providing the charging pump with a logical circuit to suppress a frequency control signal and control the output of the charging pump based on start and idle of the phase lock loop, as further taught by

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Wentzler, for the purpose of easily switching and locking to a new frequency quickly with the phase locked loop circuit.

As to claim 9, Admission-Wentzler-Juntunen discloses the FM transmitter according to claim 3, wherein said charging pump is provided with a switch to reset a bias current to zero according to a control signal output from said controller (Wentzler: see Col. 5, lines 12-31, Col. 7, lines 1-6, 13-20, and Figure 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmitter of Admission and Wentzler by providing a switch to reset bias current to zero, as further taught by Wentzler, for the purpose of providing extra current to the charge pump circuit during certain desired periods.

3. Claim 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the application prior art (Admission) in view of Wentzler (U.S. Patent 5,151,665), and further in view of Juntunen et al. (U.S. Patent 6,163,711).

As to claim 13, Admission discloses a transmitter to transmit a signal with FM modulation, wherein the transmitter receives a start/idle signal of a phase lock loop circuit (see page 2, lines 11-19). However, it does not disclose the transmitter receives a start/idle signal of a buffer amplifier, and outputs a control signal to hold an output of a charging pump at a first level of resistance at which a bias current is substantially zero, and wherein said phase lock loop circuit is moved into open loop control when the output of the charge pump is held at the first level of resistance.

The Wentzler reference teaches the transmitter outputs a control signal to hold an output of a charging pump at a first level of resistance at which a bias current is substantially zero, and

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wherein said phase lock loop circuit is moved into open loop control when the output of the charge pump is held at the first level of resistance (see Col. 4, lines 57-65, Col. 7, lines 1-6, 13-20, and Figure 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmitter of Admission wherein the transmitter outputs a control signal to hold an output of a charging pump at a first level of resistance at which a bias current is substantially zero, and wherein said phase lock loop circuit is moved into open loop control when the output of the charge pump is held at the first level of resistance, as taught by Wentzler, in order to have a phase lock loop system which can be switched between a slow and fast transition state.

However, Admission-Wentzler does not disclose the transmitter receives a start/idle signal of said buffer amplifier. The Juntunen reference teaches the transmitter receives a start/idle signal of said buffer amplifier (see Col. 5, lines 10-33, and 55-57, Col. 2, lines 63-67, and Figure 2. The controller monitors and receives indication whether the phone is in the call mode and provides on/off control of the amplifier to terminate transmission).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmitter of Admission-Wentzler wherein the transmitter receives a start/idle signal of said buffer amplifier, as taught by Juntunen, in order to conserve power.

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4. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the application prior art (Admission) in view of Wentzler and Tarusawa, and further in view of Juntunen et al. (U.S. Patent 6,163,711).

As to claim 19, Admission-Wentzler-Tarusawa discloses the FM transmitter according to claim 17, wherein said FM transmitter includes a buffer amplifier to input a signal from said phase lock loop and to output a signal to an antenna (Admission: see page 2, lines 26-29). However, it does not disclose the buffer amplifier is provided to receive a signal regarding start and idle of said buffer amplifier through from another path than the path from said phase lock loop. The Juntunen reference teaches the buffer amplifier is provided to receive a signal regarding start and idle of said buffer amplifier through from another path than the path from said phase lock loop (see Col. 5, lines 10-33, and 55-57, Col. 2, lines 63-67, and Figure 2. The controller monitors and receives indication whether the phone is in the call mode and provides on/off control of the amplifier to terminate transmission).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmitter of Admission-Wentzler-Tarusawa wherein the buffer amplifier is provided to receive a signal regarding start and idle of said buffer amplifier through from another path than the path from said phase lock loop, as taught by Juntunen, in order to conserve power.

As to claim 20, Admission-Wentzler-Tarusawa discloses the FM transmitter according to claim 17, wherein said phase lock loop includes a charging pump (Wentzler: see Col. 4, lines 57-65 and Figure 2), and wherein said FM transmitter further comprises: a buffer amplifier to input a signal from said phase lock loop and to output a signal to an antenna (Admission: see page 2,

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lines 26-29); and a controller to receive a signal regarding start and idle of said phase lock loop (Admission: see page 2, lines 11-19), and to output a control signal to control an output of said charging pump to switch status of said phase lock loop between open and closed (Wentzler: see Col. 7, lines 1-6, 13-20, and Figure 2).

However, it does not disclose the controller to receive a signal regarding start and idle of said buffer amplifier. The Juntunen reference teaches the controller to receive a signal regarding start and idle of said buffer amplifier (see Col. 5, lines 10-33, and 55-57, Col. 2, lines 63-67, and Figure 2. The controller monitors and receives indication whether the phone is in the call mode and provides on/off control of the amplifier to terminate transmission).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmitter of Admission-Wentzler-Tarusawa wherein the controller receives a signal regarding start and idle of said buffer amplifier, as taught by Juntunen, in order to conserve power.

Allowable Subject Matter

5. Claims 3-5, 7, 8, 10-12 and 14-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: claims 4, 5, 7, 8, 10-12 and 14-16 are objected to for the reasons stated in the previous Office action; claim 3 is now objected to because the claim has been amended to incorporate some of the previously indicated allowable limitations of claim 4.

Response to Arguments

7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Tarusawa et al. is applied as a new ground of rejection for claims 2, 6, 9 and 17-20.

With respect to claim 13, Examiner maintains the rejection in the previous Office action. Examiner points out that Claim 13 does not recite a charge pump output that is controlled to switch the status of the phase locked loop between open and closed, as alleged by Applicant. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Bhattacharya whose telephone number is (571) 272-7917. The examiner can normally be reached on Weekdays, 9-6, with first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid can be reached on (571) 272-7922.

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sb


5/16/05
LESTER G. KINCAID
PRIMARY EXAMINER